IN THE CLAIMS

Claims 1-18 (Canceled).

19. (New) The image sensor comprising:

a substrate in which an array of photoelectric elements is formed; and

an array of optical path conversion elements for converting optical paths of incident light formed at a light incident side of the substrate so that the optical path converted light may be incident on the substrate, each optical path conversion element being formed to match with each photoelectric element,

wherein the optical path conversion elements are selected from the group consisting of aspheric micro lenses and aspheric micro reflecting mirrors, the aspheric micro lenses and aspheric micro reflecting mirror having different tangent line gradient values on individual parts of an incident surface of the same optical path conversion element to condense incident light to the photoelectric element, and

the incident surface of each optical path conversion element has a tangent line gradient value to convert the optical path of light incident slantingly on a peripheral area of the image sensor at a larger inclination angle as the peripheral area is away from the center of the image sensor to be identical with the optical path of light incident vertically on a central area of the image sensor to counterbalance the inclination angle of light incident on the peripheral area of the image sensor, tangent line gradient values of corresponding parts of the incident surfaces of the optical path conversion elements at an identical distance from the respective matching photoelectric elements being different from one another according to distances between the corresponding parts and the center of the image sensor.

20. (New) The image sensor of claim 19, wherein the centers of the optical path conversion elements are offset from the centers of the matching photoelectric elements according to the distances from the center of the image sensor.

21. (New) The image sensor of claim 19, wherein, when the single image sensor is divided into a plurality of regions according to the distances from its center, the optical path conversion elements in the same region have the identical tangent line gradient value on the corresponding parts of the incident surfaces, but the optical path conversion elements in the different regions have different tangent line gradient

values on the corresponding parts of the incident surfaces according to the distances from the center of the image sensor.

22. (New) The image sensor of claim 19, which comprises both the aspheric micro lens type optical path conversion elements and the aspheric micro reflecting mirror type optical path conversion elements.

23. (New) The image sensor of claim 22, wherein the centers of the optical path conversion elements are offset from the centers of the matching photoelectric elements according to the distances from the center of the image sensor.

24. (New) The image sensor of claim 22, wherein, when the single image sensor is divided into a plurality of regions according to the distances from its center, the optical path conversion elements in the same region have the identical tangent line gradient value on the corresponding parts of the incident surfaces, but the optical path conversion elements in the different regions have different tangent line gradient values on the corresponding parts of the incident surfaces according to the distances from the center of the image sensor.

25. (New) The image sensor of claim 19, wherein, when it is presumed that a refraction index of a layer contacting the incident surface of the aspheric micro lens is 'n_1' the inclination angle between light incident on the incident surface of the aspheric micro lens and the optical axis is 'ϕ_1', a refraction index of the aspheric micro lens is 'n_2', and an angle of refracted light to the optical axis for light incident to one point on the incident surface of the aspheric micro lens to be refracted by the aspheric micro lens and condensed to the photoelectric element is 'ϕ_2', a tangent line gradient α at the point on the incident surface of the aspheric micro lens is represented by following formula:

$$\alpha = \tan^{-1}\left(\frac{n_1 \sin\phi_1 - n_2 \sin\phi_2}{n_1 \cos\phi_1 - n_2 \cos\phi_2}\right) .$$

26. (New) The image sensor of claim 25, wherein the centers of the optical path conversion elements are offset from the centers of the matching photoelectric elements according to the distances from the center of the image sensor.

27. (New) The image sensor of claim 25, wherein, when the single image sensor is divided into a plurality of regions according to the distances from its center, the optical path conversion elements in the same region have the identical tangent line gradient value on the corresponding parts of the incident surfaces, but the optical path conversion elements in the different regions have different tangent line gradient values on the corresponding parts of the incident surfaces according to the distances from the center of the image sensor.

28. (New) The image sensor of claim 19, wherein, when it is presumed that the inclination angle between light incident on the incident surface of the aspheric micro reflecting mirror and the optical axis is 'ϕ_3', and an angle of reflected light to the optical axis for light incident to one point on the incident surface of the aspheric micro reflecting mirror to be reflected by the aspheric micro reflecting mirror and condensed to the photoelectric element is 'ϕ_4', a tangent line gradient β at the point on the incident surface of the aspheric micro reflecting mirror is represented by following formula:

$$\beta = 90° + \frac{\phi_3 + \phi_4}{2} .$$

29. (New) The image sensor of claim 28, wherein the centers of the optical path conversion elements are offset from the centers of the matching photoelectric elements according to the distances from the center of the image sensor.

30. (New) The image sensor of claim 28, wherein, when the single image sensor is divided into a plurality of regions according to the distances from its center, the optical path conversion elements in the same region have the identical tangent line gradient value on the corresponding parts of the incident surfaces, but the optical path conversion elements in the different regions have different tangent line gradient values on the corresponding parts of the incident surfaces according to the distances from the center of the image sensor.